

Application No. 10/840,228
Amendment dated October 3, 2005
Reply to Office Action of July 1, 2005

Docket No.: 2450-0695PUS1

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for modulating light of cold cathode fluorescent lamps (CCFLs) to module a luminosity of a CCFL by altering output voltage and output current of a piezoelectric transformer that actuate the CCFL, comprising:

generating a pulse width modulation control signal that has different operation cycles T_{on} and T_{off} ; and

generating a high frequency AC signal with different frequencies f_1 and f_2 at the different operation cycles T_{on} and T_{off} of the pulse width modulation control signal to actuate the piezoelectric transformer to alter the output voltage and the output current of the piezoelectric transformer thereby to module the luminosity of the CCFL;

the piezoelectric transformer generates a first voltage gain at the frequency f_1 of the operation cycle T_{on} and generates a second voltage gain at the frequency f_2 of the operation cycle T_{off} , the first voltage gain being greater than the second voltage gain.

2. (Original) The method of claim 1, wherein the pulse width modulation control signal is output from a power supply unit controlled by a pulse width modulation technique.

3. (Original) The method of claim 1 further including altering a void ratio of the pulse width modulation control signal to modulate the luminosity of the CCFL.

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4. (Original) The method of claim 1, wherein the high frequency AC signal actuates the piezoelectric transformed to generate different voltage gains at the different frequencies f1 and f2 of the different operation cycles T_{on} and T_{off}.

5. (Cancelled)

6. (Currently Amended) An apparatus for modulating light of cold cathode fluorescent lamps (CCFLs), comprising:

a power supply unit to provide DC power required to actuate a CCFL;
a pulse width modulation (PWM) control unit generating a pulse signal through a pulse width modulation technique to control the power supply unit to output a PWM control signal that has different operation cycles T_{on} and T_{off};

a resonant frequency control unit modulating the PWM control signal to become a high frequency AC signal which includes different frequencies f1 and f2 at the different operation cycles T_{on} and T_{off}; and

a piezoelectric transformer boosting gain of the high frequency AC signal to become a high output voltage and a high output current to actuate the CCFL to generate light;

the high frequency AC signal drives the piezoelectric transformer to generate different voltage gains at the different frequencies f1 and f2 of the different operation cycles T_{on} and T_{off}.

7. (Original) The apparatus of claim 6, wherein the PWM control signal has an alterable void ration to modulate the luminosity of the CCFL.

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8. (Cancelled)

9. (Currently Amended) The apparatus of claim 86, wherein the piezoelectric transformer generates a first voltage gain at the frequency f_1 of the operation cycle T_{on} and generates a second voltage gain at the frequency f_2 of the operation cycle T_{off} , the first voltage gain being greater than the second voltage gain.